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(54) **CONTAINER FOR COLLECTING LIQUID FOR TRANSPORT**

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CPC ***A61F 5/4404*** (2013.01); ***A61M 1/0001*** (2013.01); *A61M 1/69* (2021.05); *A61M 2210/1092* (2013.01)

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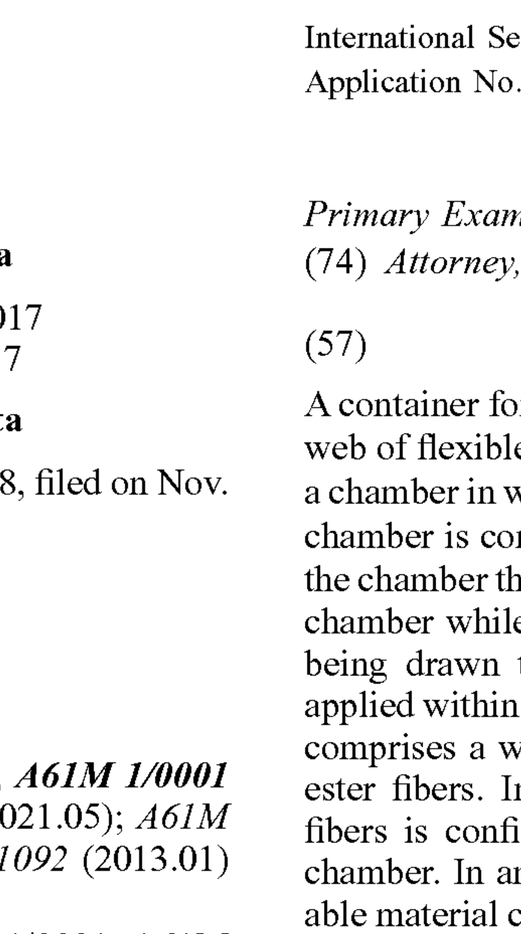
(57) **ABSTRACT**

A container for collecting liquid for transport, comprising: a web of flexible porous material defining at least a portion of a chamber in which liquid can be collected for transport. The chamber is configured to receive a tube in a position within the chamber that enables the tube to transport liquid from the chamber while the liquid collects within the chamber upon being drawn through the web when a partial vacuum is applied within the chamber via the tube. The porous material comprises a web of spun plastic fibers, such as spun polyester fibers. In one embodiment, the web of spun plastic fibers is configured to define an elongated portion of the chamber. In another embodiment, a backing of non-permeable material covers a portion of the web and is so combined with the web as to further define the chamber.

18 Claims, 2 Drawing Sheets



(58) **Field of Classification Search**
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See application file for complete search history.

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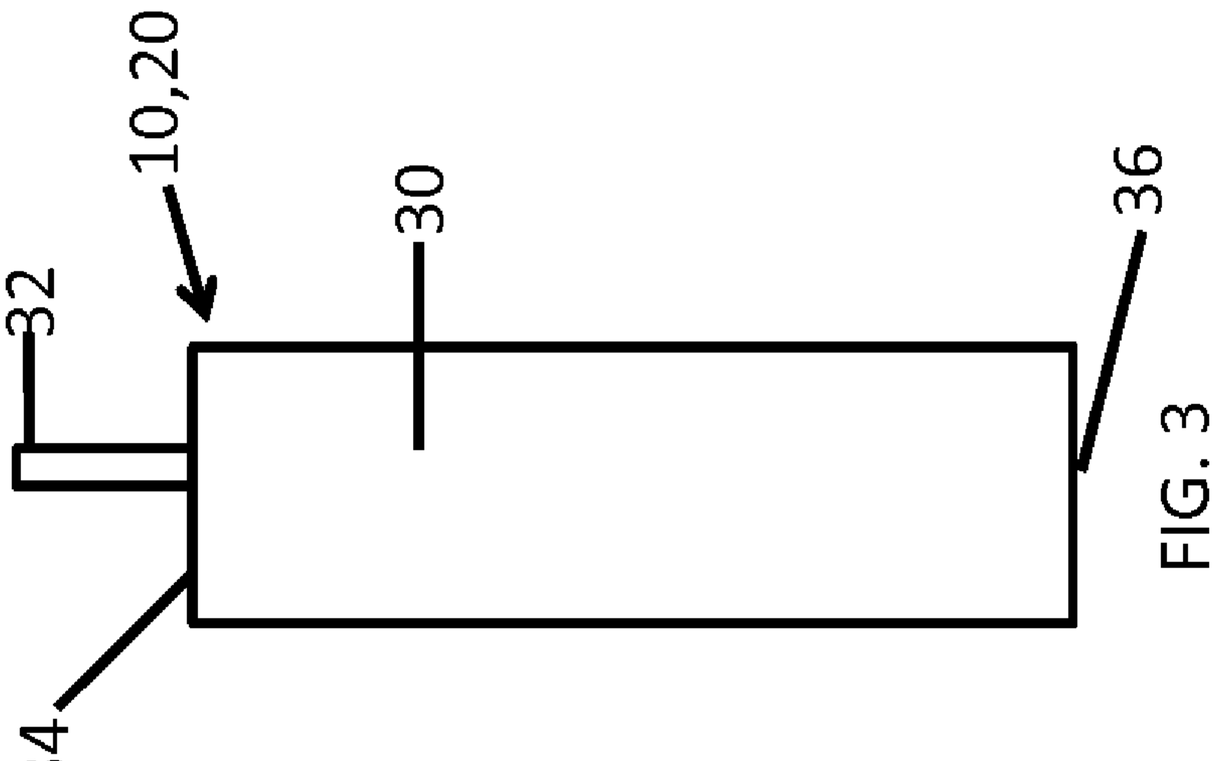

FIG. 3

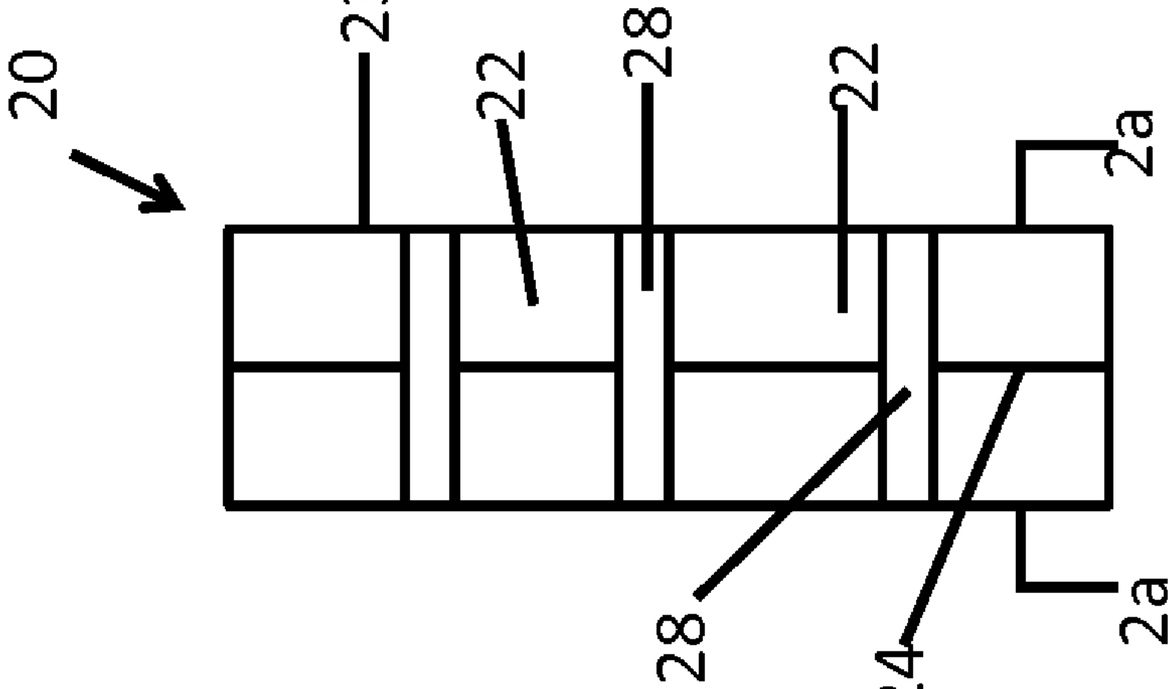

FIG. 2

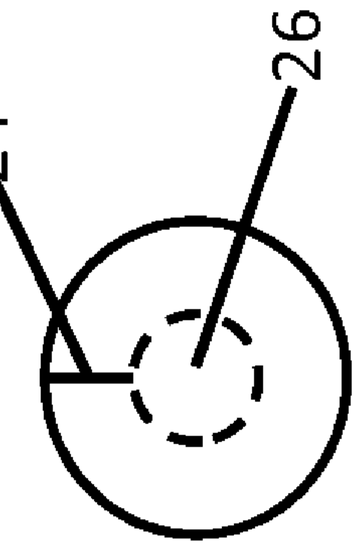

FIG. 2A

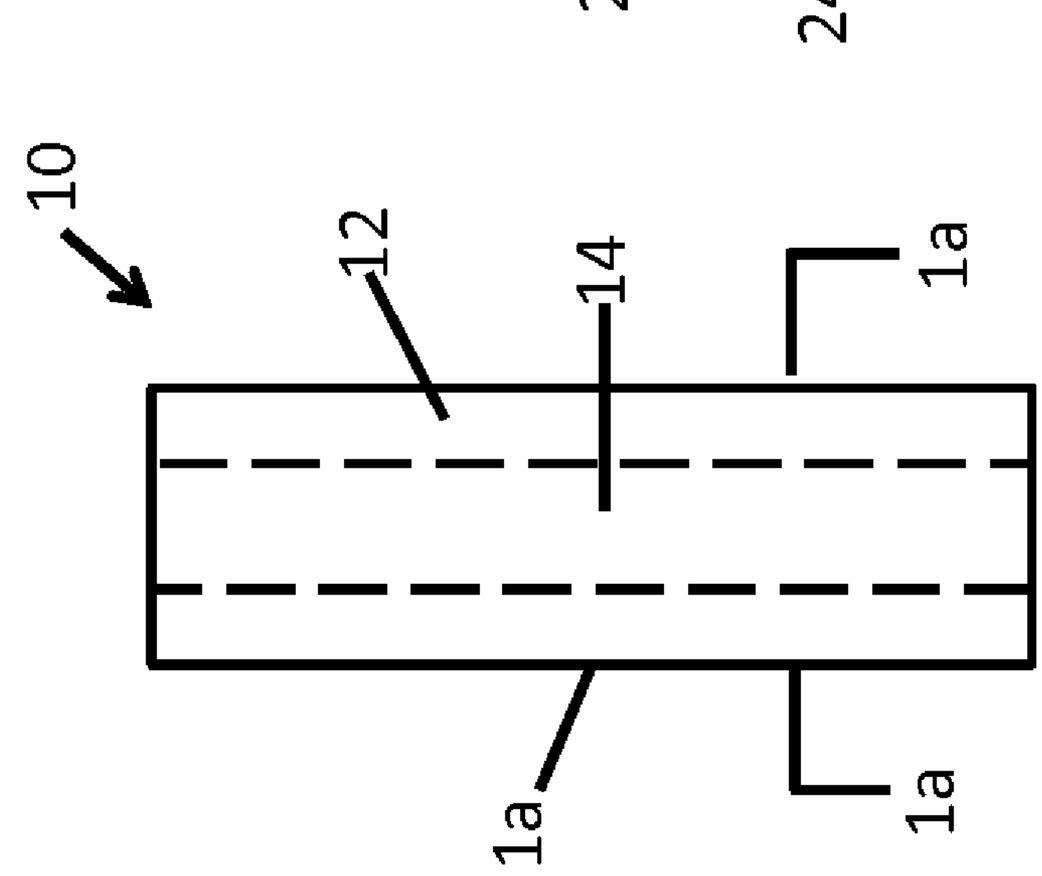

FIG. 1

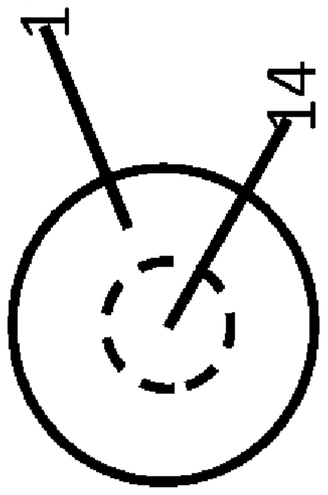

FIG. 1A

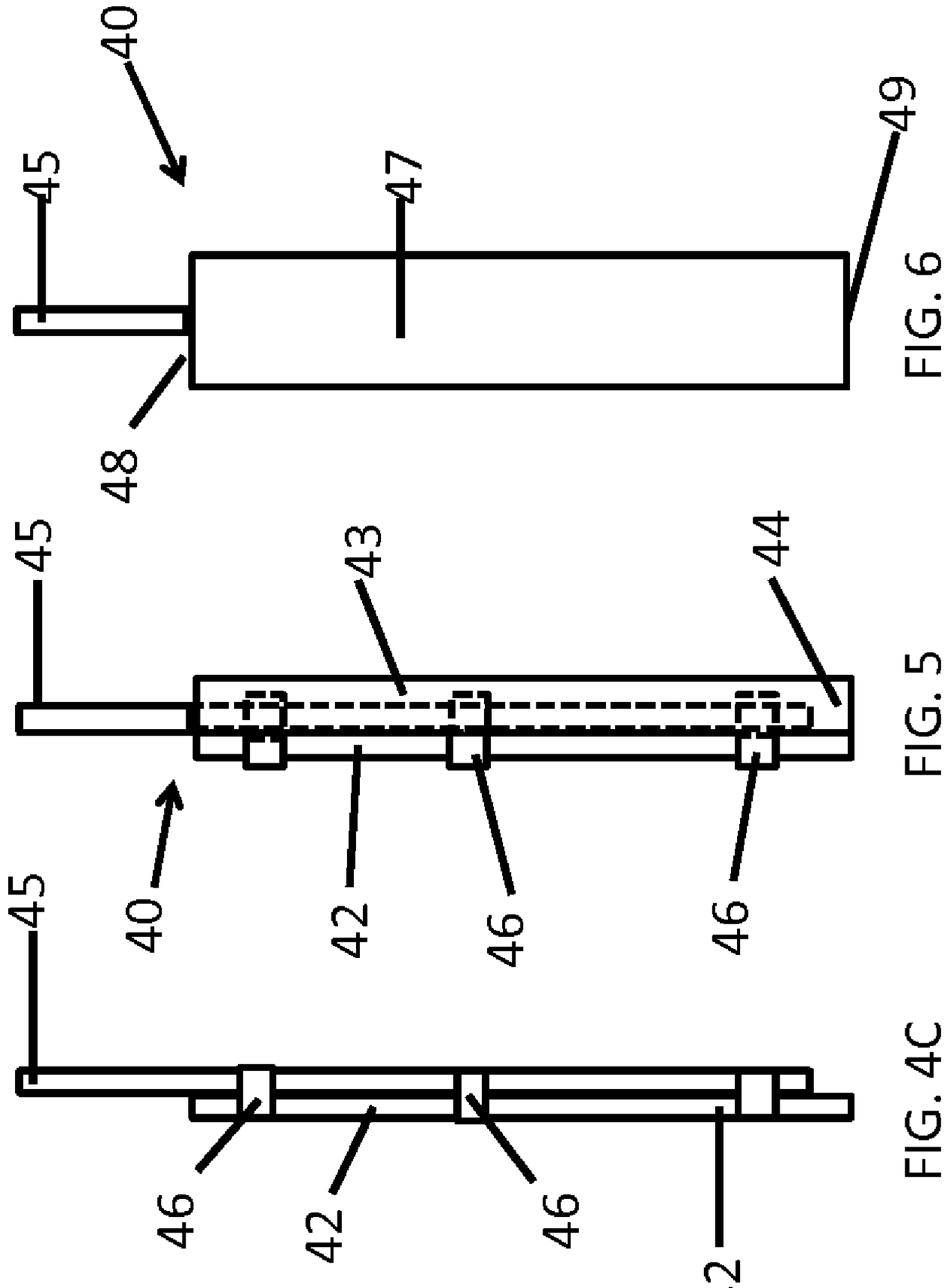

FIG. 6

FIG. 5

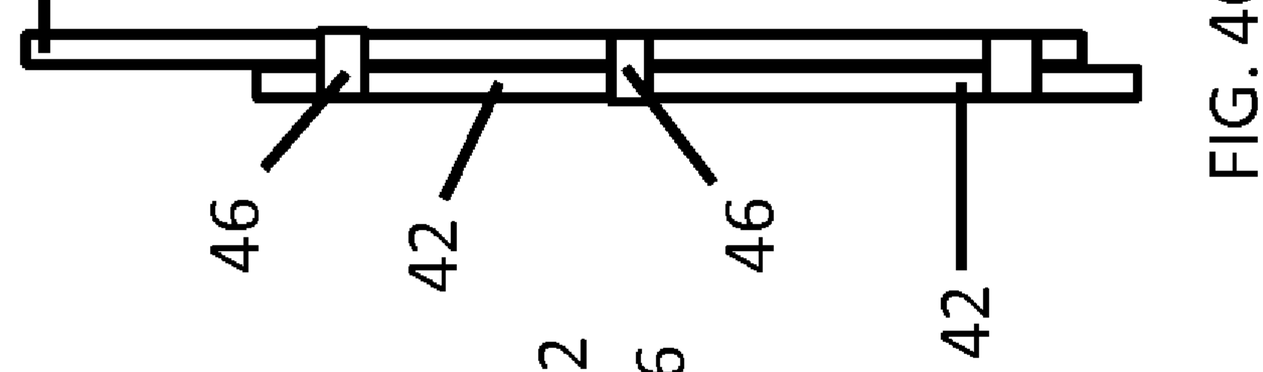

FIG. 4C

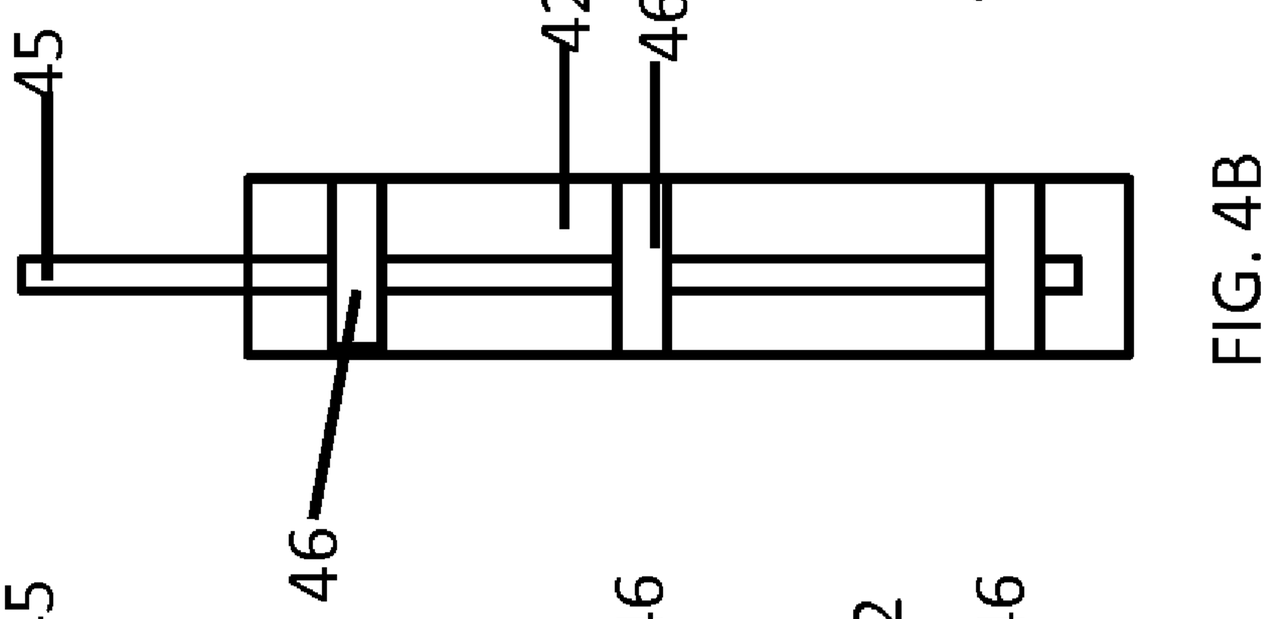

FIG. 4B

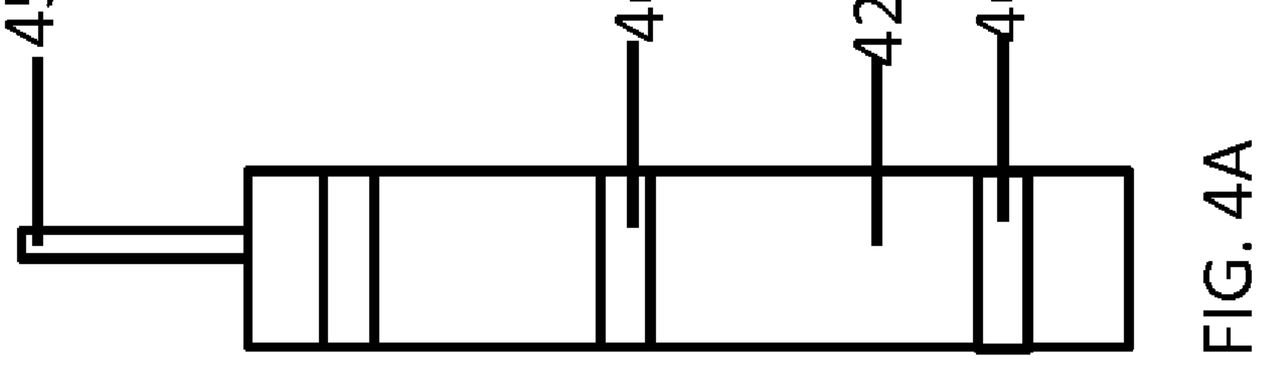

FIG. 4A

CONTAINER FOR COLLECTING LIQUID FOR TRANSPORT

CROSS-REFERENCE TO RELATED APPLICATIONS

This application claims the benefit of U.S. Provisional Patent Application No. 62/084,078 filed Nov. 25, 2014, the disclosure of which is herein incorporated by reference.

BACKGROUND OF THE INVENTION

The invention generally pertains to a container for collecting liquid for transport and is particularly directed to a container that can be used to so collect a liquid, such as urine, from the body of a person or an animal that the liquid can be readily transported from the container as the liquid is being collected.

A container for collecting urine and transporting the collected urine voided from a person's body is described in U.S. Pat. No. 8,287,508 to Robert A. Sanchez. The container described in said patent is made of plastic or some other material and defines a chamber for collecting urine. The container is closed, except for having an array of openings through which urine can be drawn into the chamber for collection and at least one outlet port through which urine can be drawn away from the chamber by a transport tube inserted into the chamber. The exterior of the container is configured for enabling a moisture-wicking article to be secured over the array of openings and for enabling the secured moisture-wicking article to be disposed in contact with the region of a female body surrounding the urethral opening. A vacuum pump is attached to the transport tube in order to create a partial vacuum in the chamber in order to draw urine into the chamber for collection of the urine and in order to draw the collected urine away from the chamber.

SUMMARY OF THE INVENTION

The invention provides a container for collecting liquid for transport, comprising: a web of flexible porous material defining at least a portion of a chamber in which liquid can be collected for transport; wherein the chamber is configured to receive a tube in a position within the chamber that enables said tube to transport liquid from the chamber while said liquid collects within the chamber upon being drawn through the web when a partial vacuum is applied within the chamber via said tube; wherein the porous material comprises a web of spun plastic fibers.

In one exemplary embodiment, the web of spun plastic fibers is configured to define an elongated portion of said chamber.

In another exemplary embodiment, a backing of non-permeable material covers a portion of the web and is so combined with the web as to further define the chamber.

The present invention is particularly useful for persons or animals during various circumstances. These circumstances include a condition such as incontinence or a disability that limits or impairs mobility. These circumstances also include restricted travel conditions, such as sometimes experienced by pilots, drivers, workers in hazardous areas, etc. These circumstances further include collection of urine for monitoring purposes or clinical testing.

Additional features of the present invention are described with reference to the detailed description.

BRIEF DESCRIPTION OF THE DRAWING

FIG. **1** is a plan view of one exemplary embodiment of a container according to the invention, with an interior chamber being shown by dashed lines.

FIG. **1**A is a sectional view of the container shown in FIG. **1**, taken along line **1***a*-**1***a* in FIG. **1**.

FIG. **2** is a plan view of a variation of the one exemplary embodiment of a container according to the invention.

FIG. **2**A is a sectional view of the container shown in FIG. **2**, taken along line **2***a*-**2***a* in FIG. **2**.

FIG. **3** is a plan view of the one exemplary embodiment of a container according to the invention, as shown in FIGS. **2** and **3**, with a moisture wicking material being wrapped around the container and a liquid transport tube inserted within the chamber of the container.

FIGS. **4**A, **4**B and **4**C are respectively front, rear and side views of a first portion of another exemplary embodiment of a container according to the invention in combination with a liquid transport tube.

FIG. **5** illustrates the portion of the container shown in FIG. **4**C in combination with a backing to further define a chamber within the container.

FIG. **6** illustrates the other exemplary embodiment, with a moisture wicking material being wrapped around the container shown in FIG. **5** and a liquid transport tube inserted within the chamber of the container.

DETAILED DESCRIPTION

Referring to FIGS. **1** and **1**A, one exemplary embodiment of a container **10** according to the present invention includes a web **12** of flexible porous material defining at least a portion of a chamber **14** in which liquid can be collected for transport. The web **12** of spun plastic fibers is configured to define an elongated portion of the chamber. Preferably, the container **10** is formed to have a tubular shape. The exterior shape of the container may be cylindrical or non-cylindrical.

The chamber **14** is configured to receive a tube in a position within the chamber **14** that enables the tube to transport from the chamber **14** liquid that is collected within the chamber **14** upon the liquid being drawn through the web **12**.

FIGS. **2** and **2**A show a variation of the one exemplary embodiment that is shown in FIGS. **1** and **1**A. In this variation, a container **20** includes web **22** of spun plastic formed in a flexible sheet **23**. The web **22** is then formed to have a tubular shape by flexing the sheet **23** so that opposite sides of the sheet **23** are held closely together, or meet as shown at **24**, to define an elongated chamber **26**. The opposite sides of the sheet **23** are held together by adhesive bands **28**, or by other means, such as glue, or by compression created by a moisture-wicking article wrapped around the perimeter.

The container **20** is configured and sized to receive a moisture-wicking article over the flexed sheet **23** and to be able to dispose the received moisture-wicking article **20** in contact with a region of the body surrounding the urethral opening.

Referring further to FIG. **3**, a moisture wicking material **30** is wrapped around the container **10**, **20** and a liquid transport tube **32** is inserted within the chamber **14**, **26** of the container **10**, **20**. In an alternative version related to the variation shown in FIGS. **2** and **2**A, the moisture wicking material **30** is attached to or sprayed onto one side of the web **22** prior to the sheet **23** being flexed in order to define the elongated chamber **26**.

The transport tube **32** is inserted through an outlet port at one end **34** of the container **10**, **20** to a position within the chamber **14**, **26** that enables the tube **32** to transport liquid collected within the chamber **14**, **26** upon the liquid passing through the web **12**, **22**.

The other end **36** of the container **10**, **20** is closed. The transport tube **32** is coupled to a vacuum pump, which can be used to create a partial vacuum in the chamber **14**, **26** of the container **10**, **20** to enable the tube **32** to transport liquid from the chamber **14**, **26** while the liquid collects within the chamber **14**, **26** upon being drawn through the web **12**, **22** when the partial vacuum is applied within the chamber **14**, **26** via the tube **32**.

Referring to FIGS. **4**A, **4**B, **4**C and **5**, another exemplary embodiment of a container **40** according to the present invention includes a porous flexible web **42** of spun plastic fibers and a backing **43** (as shown in FIG. **5**) of non-permeable material covering a portion of the web **42**.

The transport tube **45** is secured to the web **42**, as shown in FIG. **4**C. In this embodiment, an adhesive tape **46** is used to secure the transport tube **45** to the web **42**. In other embodiments, the transport tube **45** is secured by other means.

The backing **43** is so combined with the web **42** as to define a portion of a chamber **44** in which liquid can be collected for transport, as shown in FIG. **5**. The chamber **44** is configured to receive a transport tube **45** in a position within the chamber **44** that enables the tube **45** to transport liquid collected within the chamber **44**.

The transport tube **45** is secured to the web **42**, as shown in FIG. **4**C. In this embodiment, an adhesive tape **46** is used to secure the transport tube **45** to the web **42**. In other embodiments, the transport tube **45** is secured by other means.

Referring further to FIG. **6**, the container **40** is configured and sized to receive a moisture-wicking article **47** over the web **42** and to be able to dispose the received moisture-wicking article **47** in contact with a region of the body surrounding the urethral opening.

The moisture-wicking material **47** is wrapped around the container **40**, which has the liquid transport tube extending from the chamber **44** of the container. The transport tube **45** extends through an outlet port at one end **48** of the container **40** to a position within the chamber **44** that enables the tube **45** to transport liquid collected within the chamber **44**. The other end **49** of the container **40** is closed. The transport tube **45** is coupled to a vacuum pump, which can be used to create a partial vacuum in the chamber **44** of the container **40** to enable the tube **45** to transport liquid from the chamber **44** while the liquid collects within the chamber **44** upon being drawn through the web **42** when the partial vacuum is applied within the chamber **44** via the tube **45**.

Preferably, the spun plastic fibers include, and may consist of, spun polyester fibers, such as contained in a scouring pad. Polyester fibers are preferred because of their characteristic of not retaining undesirable odors. In alternative embodiments, the web is made of some other type of fibers.

For a female, the secured moisture-wicking article **20** is placed between the legs or labia and held snugly against the external urethra by pressure or friction from the user's body, by the pressure of the legs or by such means as an undergarment, elastic strips and/or adhesive tape. For a male, the secured moisture-wicking article is secured around the penis.

Different embodiments of a container for a urine collection device according to the invention are configured for use by both females and males, for both adult and pediatric applications, and for veterinary applications involving animals of different species and sizes.

The benefits specifically stated herein do not necessarily apply to every conceivable embodiment of the present invention. Further, such stated benefits of the present invention are only examples and should not be construed as the only benefits of the present invention.

While the above description contains many specificities, these specificities are not to be construed as limitations on the scope of the present invention, but rather as examples of the preferred embodiments described herein. Other variations are possible and the scope of the present invention should be determined not by the embodiments described herein but rather by the claims and their legal equivalents.

The invention claimed is:

1. A container for collecting liquid for transport, the container comprising:

a moisture-wicking material positioned to be disposed in contact with a body;

a web of flexible porous material positioned directly adjacent to at least a portion of the moisture-wicking material and at least partially defining at least one wall;

a closed end;

a non-permeable material covering at least a portion of the web of flexible porous material; and

a chamber having a first portion and a second portion, the first portion configured to receive at least a portion of a tube in a position within the chamber that enables said tube to transport liquid from the second portion of the chamber while said liquid collects within the second portion of the chamber upon being drawn through the web of flexible porous material when a partial vacuum is applied within the chamber via said tube, the first portion of the chamber including an interior surface at least partially defined by the at least one wall of the web of flexible porous material, and the second portion of the chamber positioned at the closed end and defined at least partially by a portion of the non-permeable material that is spaced from both the web of flexible porous material and an end of the tube when at least the portion of the tube is received in the first portion of the chamber;

wherein the web of flexible porous material comprises a web of spun plastic fibers.

2. The container according to claim **1**, wherein the web of spun plastic fibers defines an elongated portion of said chamber.

3. The container according to claim **2**, wherein the web of spun plastic fibers is in a flexible sheet.

4. The container according to claim **1**, wherein the non-permeable material covers a portion of the web of flexible porous material.

5. The container according to claim **1**, wherein the web of spun plastic fibers includes spun polyester fibers.

6. The container according to claim **2**, wherein the web of spun plastic fibers includes spun polyester fibers.

7. The container according to claim **4**, wherein the web of spun plastic fibers includes spun polyester fibers.

8. The container according to claim **1**, wherein the at least one wall of the web of flexible porous material extends about at least a portion of the chamber.

9. The container according to claim **1**, wherein the moisture-wicking material is wrapped around at least a portion of a perimeter of the web of flexible porous material.

10. The container according to claim **1**, wherein the chamber is configured to receive the tube through an open end of the container.

11. The container according to claim **1**, wherein:

the moisture-wicking material is wrapped around at least a portion of a perimeter of the web of flexible porous material; and

the chamber is configured to receive the tube through an open end of the container.

12. The container according to claim **1**, wherein the non-permeable material defines at least the first end of the chamber having the closed end.

13. The container according to claim **1**, wherein the web of flexible porous material is absent from the second portion of the chamber at the closed end that is defined by the non-permeable material.

14. The container according to claim **1**, wherein the second portion of the chamber at the closed end is defined at least partially on a first side by the non-permeable material and at least partially on a second side by the wall of the flexible porous material.

15. The container according to claim **13**, wherein the second portion of the chamber at the closed end is adjacent to the portion of the non-permeable material defining the second portion of the chamber.

16. A container for collecting liquid for transport, the container comprising:

a moisture-wicking material positioned to be disposed in contact with a body;

a flexible porous material including spun plastic fibers positioned directly adjacent to at least a portion of the moisture-wicking material;

a non-permeable material, at least a portion of the non-permeable material covering a portion of the porous material;

a first end having an outlet port configured to receive a tube therethrough;

a closed second end distal to the first end; and

a chamber defined at least partially by a portion of the flexible porous material, at least a portion of the chamber being positioned at the closed second end and defined at least partially by a portion of the non-permeable material that is spaced from the flexible porous material.

17. The container according to claim **16**, wherein the flexible porous material is absent from the portion of the chamber at the closed second end.

18. The container according to claim **16**, wherein the portion of the chamber positioned at the closed second end is defined at least partially on a first side by the non-permeable material and at least partially on a second side by the flexible porous material.

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